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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,320	04/26/2005	Lothar Struder	17413-0001	5420

7590 09/26/2006

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EXAMINER	
GAGLIARDI, ALBERT J	

ART UNIT	PAPER NUMBER
2884	

DATE MAILED: 09/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/509,320	STRUDER ET AL.	
	Examiner	Art Unit	
	Albert J. Gagliardi	2884	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Comment on Submissions

1. This Office Action is responsive to submissions of 28 June 2005.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are:

Regarding claim 1, the claim recites a limitation of "a first insulation layer wherein between the connecting conductor and the first insulation layer an intermediate electrode is situated . . .", yet no relative position of the first insulation layer relative to the other components has been established. Also the relationship between the electrodes and the connecting conductor is unclear (i.e., does the connecting conductor connect to one or both of the electrodes, or is it connected to some other electrode or element. As such, the precise relationship of the components is unclear. The examiners notes that prior to amendment of the claims it may have been possible to infer the structural arrangement on the elements on the basis of the drawings in view of the recited reference symbols, but that deletion of such reference symbols from the claims has prevented any such inference.

The examiner also notes that the limitation of a conductor crossover for a detector "that is capable of being used with a drift detector" further renders the claim indefinite because it is

unclear what qualities or structure are necessary to allow the conductor crossover to be capable of such use. The examiner notes that there are a wide variety of drift detectors with a wide variety of electrodes (anodes, cathodes, control electrodes, steering electrodes, shield electrodes, guard electrodes, etc. and electrode configurations (same side, opposite side, plural, single, sheet, strip, etc.) and that without any basis for determining the precise nature and purpose of the "two doped electrodes" and the "connecting conductor" it is not possible to determine what properties would render a conductor crossover capable of being used in a drift detector.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwanczyk *et al.* (2002/0139970) in view of Lingren (US 6,037,595).

Regarding claim 1, *Iwanczyk* discloses (Fig. 2) a semiconductor drift detector including at least two doped semiconductor electrodes (166) situated in a semiconductor (Si) substrate, at least one connecting conductor (i.e., conductor from anode (164) to charge amplifier (170) as well as other connecting conductors to the various other steering electrodes).

Regarding the first insulating layer, as best understood, the use of an insulating layer between and above various electrodes is typical in the art and considered routine. *Lingren*, for example discloses (Fig. 14B) a semiconductor drift detector including a plurality of electrodes (1230, 1232) and further including at least a first insulating layer (1412 and 1402, for example).

Regarding the intermediate electrode, as best understood, the use of additional electrode for any of a variety of purposes is well known in the art. *Lingren*, for example further discloses an intermediate (shielding) electrode (1420b) situated between the first insulation layer (1402) and a connecting conductor (1242) and which is electrically insulated from the connecting conductor. Regarding the use of the additional insulating layer, though not specifically shown, such a layer would have been an obvious if not inherent aspect of the device to complete the electrical isolation of the intermediate layer from the connecting member. The examiner also notes that the conditioning layer (1310) formed over the electrode layer (1403) would inherently or obviously include an insulating layer.

Regarding claim 2, *Lingren* discloses that the intermediate (shield) electrode (1420) can be set at any potential including for example a potential near that of the anode electrode (1232) so as to avoid breakdown. Regardless of the potential, electrically connecting the intermediate to another of the electrodes such that it has the same potential would have been obvious so as to avoid breakdown between such electrodes.

Regarding claim 3, absent some degree of criticality, the particular material forming the connection such as a polysilicon-silicon is considered a matter of routine design choice depending on the needs of the application.

Regarding claim 4, absent some degree of criticality, the particular choice for connection of the intermediate electrode is considered a matter of routine design choice depending on the needs of the application.

Regarding claim 5, absent some degree of criticality, the mere duplication of levels of intermediate electrodes is considered routine and would have been an obvious design choice depending on the needs of the application.

Regarding claim 6, absent some degree of criticality, the use of additional connecting conductors is considered routine and would have been an obvious design choice depending on the needs of the application.

Regarding claims 7 and 8, it is typical in the art to produce electrodes in a semiconductor substrate by doping the electrodes in a manner opposite to that of the substrate.

Regarding claim 9, *Iwanczyk* discloses the substrate is silicon (see generally Fig. 2).

Regarding claim 10-11, *Iwanczyk* discloses the electrodes may have an annular topology [0030] with multiple electrodes.

Regarding claim 12, the formation of drift detectors into arrays of adjoining detectors is well known. The use of at least one common connection conductor would have been an obvious design choice.

Regarding claims 13-14, *Iwanczyk* discloses the drift detector may be used in gamma ray (an obvious variant) spectroscopy utilizing array of drift detectors (Abstract).

Regarding claim 15, I*wanczyk* discloses a connecting conductor contacting an amplification element (170). Additional connecting elements are considered routine.

Regarding claim 16, readout electrodes are routine, as is their formation (see claims 7 and 8 above).

Regarding claim 17, *Iwanczyk* suggests that the electrodes are made of essentially a silicon material [0030].

Regarding claim 18, *Iwanczyk* further discloses a substrate electrode (162). Absent some degree of criticality, the particular material of such electrode as being essentially a silicon material would have been an obvious design choice.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert J. Gagliardi whose telephone number is (571) 272-2436. The examiner can normally be reached on Monday thru Friday from 10 AM to 6 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Albert J. Gagliardi
Primary Examiner
Art Unit 2884

AJG